

Army Brigade Combat Team Modernization: Versatile Capabilities for an Uncertain Future

by, Army Chief of Staff Gen. George W. Casey Jr.

In his February 2010 report to Congress on the 2010 Quadrennial Defense Review, Secretary of Defense Robert M. Gates asserts that “the United States faces a complex and uncertain security landscape in which the pace of change continues to accelerate.” The Secretary further states that “U.S. forces must be sized and shaped to provide the maximum possible versatility for the broadest plausible range of conflicts.” That is the essence of the Army’s Brigade Combat Team (BCT) Modernization initiative – providing our Nation’s leadership with versatile ground force capabilities with applicability across the spectrum of operations, and with the institutional agility to both anticipate emerging challenges and the ability to rapidly adapt.

Today, we are fighting wars in Afghanistan, Iraq, and elsewhere while simultaneously preparing for an increasingly complex and uncertain future. For the foreseeable future, the international security environment may best be characterized by persistent conflict – protracted confrontation among state, non-state, and individual actors who are increasingly willing to use violence to achieve their political and ideological ends. To adapt to the vagaries of persistent conflict, the Army is adapting our doctrine, organization, training, leader development programs, and the delivery of materiel with which we equip and outfit our Soldiers and units, as well as the methods



we employ to put the right tools in the hands of our Soldiers before they are put in harm's way. This year - 2010 - we are fundamentally changing how we modernize the Army. We are shifting away from a focus on the Future Combat Systems (FCS) program as the centerpiece of our modernization effort, to one that emphasizes getting the right capabilities in the hands of our Soldiers to win the wars we are in, while developing the versatile capabilities required for future challenges. We refer to this new approach as "Brigade Combat Team (BCT) Modernization".

Cancelling FCS

Since its inception in 2003, the FCS program was the center of Army modernization efforts. The FCS program included a family of manned and unmanned, air and ground systems, all connected by a distributed, integrated network, that would operate as a "system of systems". The plan called for developing and fielding the family of systems to 15 BCTs over 29 years. In July 2004, the Army added plans to deliver selected "Spin-Outs" of FCS technologies and systems to BCTs as they mature in development. As the program evolved, adjustments were considered such as trimming the number of manned ground vehicle (MGV) variants while continuing with fielding the Non-Line-Of-Sight Cannon (NLOS-C) and the Infantry Fighting Vehicle plus delivering "Spin-Out" capabilities to all BCTs. Additionally, in May 2008, we adjusted the fielding priority for "Spin-Outs" from Heavy BCTs to Infantry BCTs to better meet warfighter demand.

On April 6, 2009, Secretary Gates announced his proposed adjustments to the defense program as part of the President's budget proposal for Fiscal Year 2010. The

Secretary's decisions had an immediate and major impact on our FCS-centric modernization effort. He terminated the MGVT portion of FCS, directing that we "reevaluate the requirements, technology, and approach – and then re-launch the Army's vehicle modernization program...."¹ Secretary Gates further directed the Army to "accelerate the initial increment of the program to spin out technology enhancements to all combat brigades,"² and retain and deliver software and network development program in increments, while noting the lack of a clear role in our modernization plan for the Mine Resistant Ambush Protected (MRAP) vehicles which are saving so many lives in Afghanistan and Iraq today. His intent for these bold adjustments was clear – to better reflect the lessons that we were learning from ongoing operations and better posture Army forces for a broader range of future challenges.



Subsequently, the Department of Defense issued an Acquisition Decision Memorandum (ADM) on 23 June 2009, directing the Army to cancel the FCS BCT acquisition program. The Army viewed this as an opportunity to address the remaining elements of the FCS program, and to take advantage of the lessons learned and the technological advances from the FCS program to shape a new approach to BCT Modernization. First, the Army issued a partial termination notice for the MGVT program. With Congressional approval, the Army later terminated the NLOS-C Special Interest Program. We restructured the System Development and Demonstration contract with the Boeing Company to focus on

¹ Hon. Robert Gates, Secretary of Defense. "Defense Budget Recommendation Statement." 6 April 2009.

² Ibid.

the development of Spin-Out capabilities as part of the first incremental capability package. The restructured contract stipulates that Boeing will deliver one Brigade set of early capabilities, the bulk of our first Capability Package. Pending results of ongoing Increment 1 testing and evaluation, the Army has the option to contract with Boeing to deliver two additional BCT sets and can then procure subsequent packages from the original equipment manufacturers. Additionally, the Army will harvest the software, hardware, and engineering developments from the FCS program for future developmental programs.

To ensure we are developing and fielding relevant capabilities with maximum versatility in a rapidly changing security environment, the Commander of the U.S. Army Training and Doctrine Command (TRADOC), General Martin Dempsey, was charged with developing recommendations for affordable BCT modernization



and to determine the operational requirements for the new GCV. Given 120 days to accomplish the first phase of this effort, he established Task Force 120 (TF 120) to evaluate the Army's short- and long-term modernization requirements and ensure that the proposed solutions mitigated the Army's highest risk capability gaps. In early September 2009, TF 120 delivered its recommendations to senior Army leaders focusing on capability packages, GCV operational requirements, and BCT network integrated architecture. Now approved, these recommendations form the basis for the incremental modernization of all Army BCTs.

Our new BCT Modernization Plan is closely linked in time, space, and purpose with our force generation model – the Army Force Generation Model, or ARFORGEN -- by which we continuously provide Combatant Commanders with trained and ready forces they require to implement the national defense strategy. Broadly stated:

Our goal is to build a versatile mix of tailorable and networked organizations, operating on a rotational cycle, to provide a sustained flow of trained and ready forces for full spectrum operations and to hedge against unexpected contingencies at a sustainable tempo for our all-volunteer force.

As we've witnessed in recent operations, there will continue to be a clear demand for a mix of Army combat forces that can operate effectively in all types of terrain against a combination of conventional, hybrid, and irregular threats. It is this variable mix of Army forces that provides the "versatility for the broadest plausible range of conflicts" sought by the Secretary of Defense. So what might a sustainable force package from the Army look like in about 10 years? What would be the result of a decade of BCT Modernization? While the precise force mix would be determined by the mission(s), we envision providing a pool of Heavy BCTs (some equipped with the GCV), Stryker BCTs, and Infantry BCTs, all enabled with an enhanced network and packages of relevant capabilities with access to MRAPs necessary for their assigned missions.

BCT Modernization Plan

As we have already discussed, our BCT Modernization Plan is informed by the comprehensive lessons learned from more than eight years of war, focuses on the evolving needs of our warfighters in a rapidly changing security environment, and exploits the knowledge and technologies developed under the FCS program. But

instead of making one modernization decision and then applying it across the Army over two or more decades as we have typically done in the past, the BCT Modernization Plan recognizes that modernization decisions must be made incrementally to stay ahead of the demands of the security environment and the needs of our warfighters. Our new plan emphasizes the role of battle-tested Soldiers in the development of new equipment, provides for the incremental delivery of the network, incorporates MRAP vehicles into our formations, accelerates the fielding of Capability Packages across all BCTs, and initiates a new GCV.

The Army will capitalize on many of the investments made in the FCS program and leverage that body of knowledge into the BCT Modernization plan to expedite the delivery of capabilities to the Warfighter. The FCS program matured 44 critical vehicle technologies and the Army has opened the plans of these technologies, called the “MGV Body of Knowledge,” to industry so that they can see and potentially use the investment in these technologies as they formulate plans for the GCV. Incorporating the MGV body of knowledge into the BCT Modernization plan will expedite the delivery of capabilities to the Warfighter and capitalize on the Army’s investment to date.

Soldier-In-The-Loop Feedback

A critical practice continued from the FCS program is the use of Soldier feedback on emerging capabilities. The Army Evaluation Task Force (AETF) – a brigade-sized unit- created in 2006 at Ft.



Bliss, Texas, provides immediate feedback during the testing and evaluation of new technologies, organization, and training initiatives. As you might expect, battle-tested Soldiers are not shy about telling Army combat developers and industry designers what works and what doesn't.

I refer to [AETF Soldiers] as the Army's test pilots. They test it out before putting it in the hands of Soldiers. The ability to have the Soldier use it in an operational environment and for them to give feedback to us...is absolutely essential.

—Maj. Gen. John R. Bartley, Program Executive Officer, Integration



Constant feedback from Soldiers – operating in units as they would on the battlefield - is vital to ensuring new systems meet operational needs. This process informs the development and integration of enhanced capability packages as well as tactics, techniques, and procedures for the current and future force.

Combat-experienced Soldiers at AETF test

emerging systems to failure and provide instant feedback to product manufacturers, which helps drive the delivery of a better product to the Warfighter. Experienced Soldiers, such as Sergeant Tucker Platt, find real value in the AETF's mission. "This will directly affect the future Army," he said. "And it feels good to know that what we're doing now and what we are testing is going to benefit and possibly save Soldiers' lives in the future."³ Soldier-in-the-Loop participation in the development process reduces

³ Lopez, C. Todd. "Soldiers Affect Brigade Modernization." Army News Service, 23 October 2009.

the risks associated with developing new systems and focuses the collective effort on providing new capabilities that perform as intended from the outset.

Army Network Modernization

The Army's network is crucial to enabling operations across the spectrum of conflict. The network supports leaders in making timely, informed decisions and underpins organizational agility, lethality, and sustainability. It allows Soldiers to know where other friendly forces and civilian populations are, where the enemy is reported, and which weapon systems are available at any given time. The network links Soldiers on the battlefield with space-based and aerial sensors, robots, and command posts. This provides the situational awareness necessary to apply lethal and non-lethal force with the precision demanded by the security environment.

The Army's strategy connects the Soldiers into the network so they have the right information at the right place and time.

Components, such as the Network Integration

Kit and Common Controller, were designed to provide control of unmanned systems, fused sensor data, and distribute information to a common operating picture. The Warfighter Information Network (Tactical) (WIN-T) is designed to extend the network ultimately to the company level for BCTs and provide real-time information, such as high definition imagery, from surveillance sources. The Joint Tactical Radio System (JTRS) was developed specifically to resolve radio interoperability issues among all services. It



will provide Soldiers at the tactical level with connectivity at extended ranges, including voice, data, and video, enabling them to move information from platoon to higher-level command posts in any terrain (including urban and mountainous areas). JTRS “networks” radios together using every radio as a relay and is less vulnerable to cyber-threat compared to current radios. As a “software-defined” radio, JTRS also enables the integration of emerging technologies without replacing hardware. The network also includes software to enable greater situational awareness and collaboration. The BCT Modernization Plan emphasizes the importance of the network as the key enabler for operations across the spectrum of conflict in austere and complex environments.

Maintaining technological advantage is a constant challenge. Therefore, the Army must field the network with the embedded capacity to receive incremental updates and improvements as technologies mature and needs evolve. With non-proprietary wave forms and open standards, competition will inform future investments and application development will be cheaper and quicker. The Army conducts a comprehensive series of operational and technical tests and evaluations to ensure the interoperability of network components prior to unit fielding. Network upgrades will provide support for multiple forms of communication (voice, data, and video); display and disseminate information using common data formats and protocols; and improve interoperability with Joint, Interagency, Intergovernmental, and Multinational partners. Network integration will incrementally move the Army towards a single and expanding joint network.

Incorporating MRAPs into Formations

Over the past few years, Improvised Explosive Devices (IED) have proven to be the most deadly and difficult threat in Afghanistan and Iraq. We have made a significant investment in a new class of wheeled-vehicles to provide increased protection for US ground forces. The Mine Resistant Ambush Protected vehicle – known simply as the



MRAP – has been developed in multiple variants and has saved many lives by providing essential mobile protection for our Soldiers and other personnel operating on the ground. We continue to invest heavily in developing countermeasures for the continuously

evolving IED threat, but the MRAP is here to stay in Army formations for the foreseeable future. The Army will incorporate packaged sets of MRAPs into BCTs and other formations as part of the of the ARFORGEN cycle. We also intend to provide MRAPs for home station training and at our major training centers. In selected units (such as sustainment brigades, and medical, route clearance, and explosive ordnance units), they will replace current vehicles. As with all major critical items of equipment, the Army will maintain MRAPs in the operational float and wartime reserve stocks.

Accelerated Capability Package Fielding

In order to accelerate and incrementally field mature technologies, TF 120 recommended BCT Modernization capability development priorities, under a plan that fields capabilities as integrated packages based on Warfighter needs, technological advances, and available resources. Capability Packages provide a disciplined process

for outfitting units with the latest materiel and non-materiel solutions in anticipation of, or response to, the evolving challenges of the security environment. For example, Capability Packages may include doctrine, organization, materiel, and training solutions to address the highest priority needs. This reduces risk to Soldiers and mission success. These packages will fill capability gaps, as integrated sets of solutions and aligned with the budget cycle, to deliver solutions incrementally and synchronized with the ARFORGEN process. By fielding capabilities aligned to ARFORGEN, Soldiers will have the right capabilities at the right time to accomplish their mission. The best capabilities available at that time will go to the Soldiers who need them the most, based on a continuous assessment of missions, threats, and warfighter needs. This incremental approach will enable leaders to make timely, resource-informed decisions and will help ensure that we provide the best available technologies to fulfill urgent requirements for Soldiers in the fight.

We have reevaluated and assessed technologies under development, against current high risk capability gaps, and continue to evolve our incremental approach, while terminating those programs and technology-development efforts that are no longer relevant or cost-effective. The Army will continue to develop many of the original FCS “Spin-Out” technologies that demonstrate near-term operational value. The most mature of these systems, such as the Unattended Ground Sensors, Small Unmanned Ground Vehicle, Non-Line of Sight Launch System, and the Class 1 Unmanned Air Vehicle, collectively termed “Increment 1 capabilities,” are part of the first capability package the Army intends to field to the 3rd BCT, 1st Armored Division at Ft. Bliss, Texas, in 2011. The Army will continue to mature these Increment 1 capabilities to

deliver block upgrades of the above systems as well as new systems such as the Common Controller and Counter IED variant of the Armed Reconnaissance Vehicle Assault-Light as part of the second capability package starting in 2013. Other capabilities previously developed under the FCS program, such as the Class IV Unmanned Air System (UAS) and the



Multifunction Utility/Logistics and Equipment Transport (MULE-T) and MULE-Countermines (MULE-CM) unmanned ground vehicle, were cancelled following the Army's reevaluation of these systems. We concluded that the Class IV UAS was no longer a cost-effective solution since current force UAS can sufficiently meet requirements with product improvements to existing systems. Likewise, we also determined that two large robots (MULE-T and MULE-CM) did not meet rapidly changing threats, nor address the Army's most critical future mission needs.

This focus on delivering the best and most mature capabilities, along with realizing resource savings from cancelled FCS technologies, will accelerate fielding of Capability Packages to 29 BCTs by 2016 (compared to the previous program of fielding "Spin-Outs" to just 13 BCTs by 2016) and to all BCTs by 2025.

Ground Combat Vehicle (GCV)

We have reevaluated the requirements, technology, and approach to developing a new GCV program. We reviewed all current fighting vehicles to determine whether to sustain, improve, divest, or pursue new vehicles based on operational value, capability shortfalls, and resource availability. This analysis exposed an aging fleet of vehicles

with a new Infantry Fighting Vehicle as the most pressing demand. The M113, designed decades ago, is no longer survivable on today's battlefields, while the Bradley Fighting Vehicle which proved so successful in the 1991 Persian Gulf War and many times since, has limited capacity for enhancing its mobility, survivability, and power generation for the network.

Perhaps even more important than in some previous conflicts, protected mobility is essential for mission success. Combat vehicles must give Soldiers the option of maneuvering off-road to avoid IEDs placed along predictable routes, and offer greater protection against IEDs when the mission requires travel on roads. These same vehicles must also provide better mobility to operate in cities. Additionally, Soldiers need better communication and information sharing-on-the-move, both mounted and dismounted down to the lowest level. Applying these lessons to the Army BCT Modernization Plan addresses current operations and helps ensure the Army remains an effective force into the future.

Task Force 120 worked with elements from across the Army, Marine Corps Combat Developments Command, and Key Allies to codify operational requirements for a new GCV. The Task Force members emphasized the lessons learned from eight years of war and grounded projections of technology in developing GCV requirements. To refine and validate those requirements further, the Vice Chief of Staff of the Army sponsored a Ground Combat Vehicle Blue Ribbon Panel to inform TF 120 efforts. The panel applied input from Joint-Service partners, experienced former Army Leaders, think tank analysts, and representatives from the Office of the Secretary of Defense, as well as Army Soldiers and leaders with a wide range of operational experience. The

unvarnished input received from the Panel was instrumental in identifying characteristics and features needed in the new GCV.

Our new GCV seeks a versatile range of capabilities. Our goal is for the GCV, carrying an infantry squad, to equal or surpass the under-belly protection offered by MRAP, the off-road mobility and side protection of the Bradley Fighting Vehicle, and operational mobility of the Stryker. Developing the new GCV will not be an easy task,



but the current and anticipated future security environments demand this combination of capabilities. On-board armaments will provide precision lethality overmatch against adversary systems and limit collateral damage. The GCV platform will also integrate the network to maintain

situational awareness in urban and other operations. While the new vehicle will provide sufficient space and electrical power to support the network, it calls for adequate growth potential to ensure the ability to integrate upgrades and new technologies.

Applying lessons from FCS, Stryker, Bradley and Abrams, we believe our approach to GCV development and procurement will be a model for acquisition reform, with an incremental development approach including competitive prototyping to enable production of the first vehicle by fiscal year 2017. Capabilities incorporated in subsequent increments will be informed by changes in the security environment and enabled by the maturation of advanced technologies.

Conclusion

We are a Nation at war. The security environment is uncertain and complex, and the pace of change is accelerating rapidly. It is the Army's responsibility to provide current and future ground force commanders with relevant capabilities that provide "the maximum possible versatility for the broadest plausible range of conflicts." We must simultaneously adapt current capabilities and develop the new capabilities required to win today's wars, and hedge against an uncertain future. We must learn from both past failures and triumphs. Our BCT Modernization Plan is the blueprint for accomplishing that monumental task. We will incrementally develop and field new capabilities based



on advanced technologies, synchronized with our ARFORGEN process. We will be continuously informed by current operations and guided by the insights and experiences of battle-tested Soldiers and the evolving needs of our warfighters. We will field an expansible network with the capacity for incremental upgrades which will connect Soldiers and platforms into a coherent fighting force of unmatched power. We will fully leverage the investments our Nation has made in the MRAP family of vehicles to save the lives of our Soldiers while accomplishing the most dangerous missions. We will accelerate the development and fielding of incremental capability packages to stay ahead of the threat or respond rapidly to surprise. And we will develop and begin fielding a new Ground Combat Vehicle within seven years that will enhance the options available to our joint force commanders for operations across the spectrum of conflict. With the continued leadership and unwavering support of the

Administration and Congress, the American Soldier will continue to be the most respected and capable combatant in the world.